INTERNATIONAL CONFERENCE ON NEW MUSICAL NOTATION
INTERNATIONALE KONFERENZ ÜBER NEUE MUSIKALISCHE NOTATION

State University Ghent
22 - 25 October 1974

REPORT - BERICHT

Editors - Herausgeber:

Herman SABBE - Kurt STONE - Gerald WARFIELD

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Assisted by:

- Centre Belge de Documentation Musicale (CEBEDEM). Scientific Advisor: Dr. Diana von Volborth

PARTICIPANTS - TEILNEHMER

Participation in the Conference was open to anyone professionally interested in new musical notation. However, participants whose names are preceded by an asterisk (*) attended under the auspices of the Index of New Musical Notation, New York, and the University of Ghent, Belgium.

AMMANN, Benno

Composer-Basel (Switzerland)

*ANDERSON, Ronald

Trumpeter-New York City (USA)

*BARTHOLOMEE, Pierre

Composer, Pianist, Conductor-Brussels (Belgium)

BECKWITH, John

Dean, Faculty of Music, University of Toronto (Canada)

BENGTSSON, Ingmar

Ethnomusicologist, Prof. Uppsala University (Sweden)

BERNSTEIN, Giora

Prof. Pomona College, Claremont, California (USA)

*BLATTER, Alfred

Editor Media Press, Horn Player, Composer-Urbana, Illinois (USA)

BLAUVELT, Frances

Vocalist-Utrecht (Holland)

BOSSEUR, Jean-Yves

Composer, Musicologist-Paris (France)

*BROECKX, Jan-Lea

Prof. of Musicology, State University Ghent (Belgium)

*BROWN, Earle

Composer, Conductor-Baltimore, Maryland (USA)

BUKSPAN, Yael

Musicologist Tel Aviv (Israel)

*CASKEL, Christoph

Percussionist-Cologne (German F. R.)

*CASTALDI, Paolo

Composer-Milano (Italy)

*CRUMB, George

Composer, Prof. University of Pennsylvania, Philadelphia, Penn. (USA)

DIANDA, Hilda

Composer (Argentinian)-Düsseldorf (German F. R.)

*ELIAS, William

Editor, Composer, Managing Dir. Israel Music Institute, Tel Aviv (Israel)

EPPERSON, John

Assistant, Index of New Musical Notation New York City (USA)

FRENCH, Richard F.

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*GOETHALS, Lucien

Composer, Institute of Psycho-Acoustics and Electronic Music, Ghent (Belgium)

*GOTTWALD, Clytus

Choral Conductor, Musicologist-Stuttgart (German F. R.)

*HAMBRAEUS, Bengt

Composer, Musicologist (Swedish), Prof. McGill University, Montreal (Canada)

HARRIS, Russell G.

Prof. Hamline University, St. Paul, Minnesota (USA)

*HAUBENSTOCK-RAMATI, Roman

Composer, Prof. Musikhochschule Vienna (Austria)

JENNI, Donald Martin

Composer, Prof. University of lowa, Iowa City (USA)

KABALEWSKI, Wladislaw

Vice-President Polish Authors' Society, Warsaw (Poland)

*KALISH, Gilbert

Pianist-New York City (USA)

*KARKOSCHKA, Erhard

Author, Composer, Conductor-Stuttgart (German F. R.)

KIMBELL, Michael A.

Prof. Johnson State College, Johnson, Vermont (USA)

KOENIG, Wolfgang

Trombonist-Buir (German F. R.)

*LEHMANN, Hans Ulrich

Composer-Zurich (Switzerland)

de MAREZ OYENS-WANSIN K, Tera

Composer, Delegate Genootschap van Nederlandse Componisten, Amsterdam (Holland)

MAKEDONSKI, Kiril

Musicologist-Skopje (Yugoslavia)

*McCARTY, Frank L.

Percussionist, Composer,

Electronicist, Prof. Pittsburgh University, Pittsburgh, Pennsylvania (USA)

*MEIER, Gustav

Opera and Symphony Conductor, Prof. Eastman School of Music, Rochester, New York (USA)

*NØRGAARD, Per

Composer-Copenhagen (Denmark)

PAPINEAU-COUTURE, Jean

Composer, President Canadian Music Centre, Montreal (Canada)

PARENT, Nils

Composer, Prof. Université Laval, Québec (Canada)

PEPIN, Clermont

Composer, Delegate Ministère des Affaires Culturelles du Québec, Montreal (Canada)

*READ, Gardner

Composer, Author, Prof. Boston University, Boston, Massachusetts (USA)

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Editor, Universal Edition London (England)

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Musicologist, State University Ghent (Belgium)

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*STONE, Kurt

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Composer, Prof. M. I. T., Cambridge, Massachusetts (USA)

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Composer, Assistant, Index of New Musical Notation - New York City (USA)

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Conductor Rome (Italy)

*TOMASZEWSKI, Mieczyslaw

Editor, Dir. Polish Music Editions, Krakou (Poland) von VOLBORTH-DANYS, Diana

Editor, Delegate CeBeDeM, Brussels (Belgium)

VOUILLEMIN, Sylvain

Composer, Dir. Conservatoire Liège, Delegate SABAM, Brussels (Belgium)

*WARFIELD, Gerald

Composer, Associate Director Index of New Musical Notation-New York City (USA)

*WEISBERG, Arthur

Conductor, Bassoonist - New York City (USA)

WOOD, Joseph

Composer, Prof. Oberlin College, Oberlin, Ohio (USA)

*WUORINEN, Charles

Composer, Pianist, Conductor - New York City (USA)

*WYNER, Susan Davenny

Vocalist - New Haven, Connecticut (USA)

*ZUKOFSKY, Paul

Violinist, Prof. New York State University

OTHER ATTENDANTS

BLAUVELT, Ralph.

Utrecht (Holland)

BRUZDOWICZ, Joanna

Composer - Paris (France)

CAMPBELL, Charles

University of Miami, Coral Gables, Florida

COPPENS, Claude

Composer, Pianist - Ghent (Belgium)

DE MEESTER, Louis

Composer - Ghent (Belgium)

DEMPEWOLF, Jürgen

Musicologist - Berlin (German F. R.)

DE SMET, Raoul

Composer - Antwerp (Belgium)

FLEMING, Larry

St. Paul, Minnesota (USA)

FREISTADT, Meyer

Eastchester, New York (USA)

GODJEVATZ, Velizar

Author - New York City (USA)

LOBAUGH, Bruce

Chairman, Dept. of Music, University of Regina (Canada)

MALEC, Ivo

Composer, SACEM - Paris (France)

MUTSAERS, Henry

Canadian Music Centre, Toronto (Canada)

RAES, Godfried

Composer - Ghent (Belgium)

ROSSEAU, Norbert

Composer - Ghent (Belgium)

SCHMIDT, A. Warren

Waverly, Iowa (USA)

SCHUDEL, Thomas

Dept. of Music, University of Regina (Canada)

SZENTKIRALYI, Andräs

Composer - Fleckeby (German F. R.)

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This Report was published in INTERFACE
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Volume 4, Nr. 1 (1975), Swets & Zeitlinger, Lisse.
The *Electronic Appendix of JNMR* tells you how to submit manuscripts.
Its contains abstracts and sound-examples of published articles.

GENERAL CATEGORIES

I. PITCH

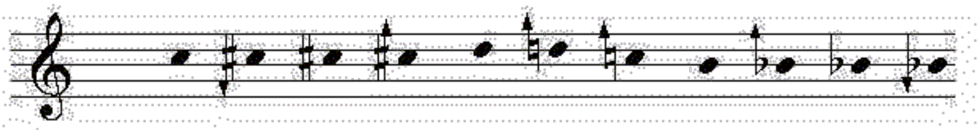
1. ACCIDENTALS

All scores and parts notated in a system that includes accidentals should contain an indication stating the accidental policy followed.

2. MICROTONES

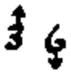
A. Specified Microtones

Quarter-Tones



Other Microtones

Indicate other microtones with numerals (indicating the micro-interval) to which arrows are attached (to indicate the direction).

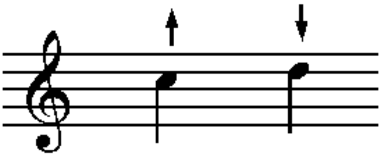


The examples indicate a third of a whole tone step higher and a sixth of a whole tone step lower, respectively.

Comment: Such accidentals should appear above the note(s) to which they apply. In the case of double and triple stops, etc., one sign would apply to all the notes concerned, unless otherwise indicated (the superposition of numerals corresponding to that of the notes).

B. Unspecified Microtones

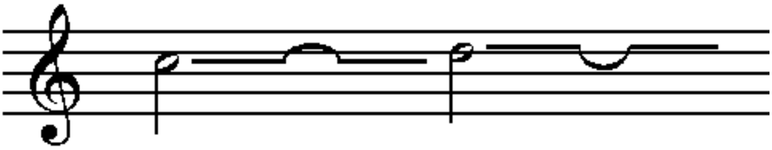
Single Tones



It was pointed out that the arrows must be small and thin in order not to be confused with larger or thicker arrows used for other purposes

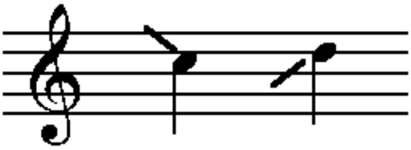
(cf.: PITCH NO.6, INDETERMINATE REPEATS, SCORE LAYOUT).

Inflections



Comment: Specific microtonal inflections should be notated with the appropriate accidentals.

Quick Slide into Note



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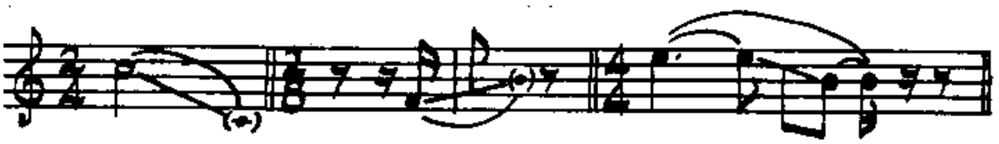
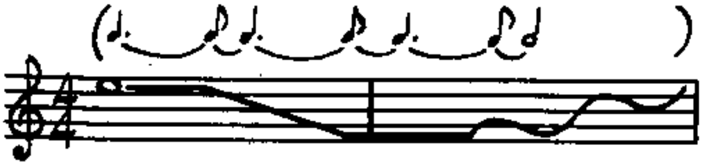
3. GLISSANDO



Comment: It is understood that the glissando line may be curved or undulated to indicate other than straight glissandi.

In case of rhythmic complexities, durations may be indicated on an independent cue line.



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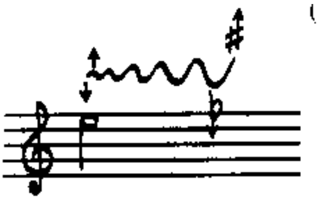
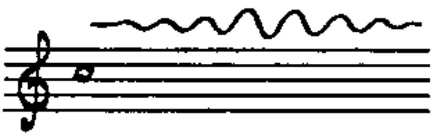
4. VIBRATO

A. Variations of Width

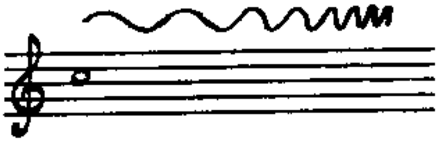
With Specification of Width



Without Specification



B. Variations of Speed



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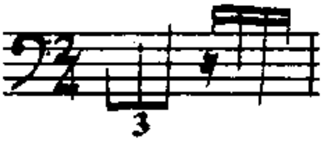
5. INDETERMINATE PITCH

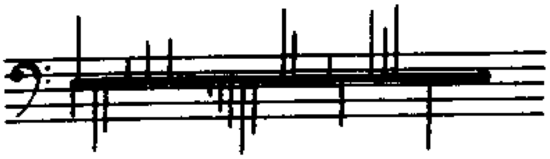
A. On a Five-Line Staff

In Symbolic Durational Notation



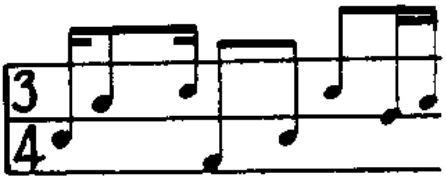
Comment: The possible ambiguity of headless half and quarter-note stems should be avoided by means of using only flagged and/or beamed stems (eights, sixteenths, etc.).

In Proportionate Durational Notation

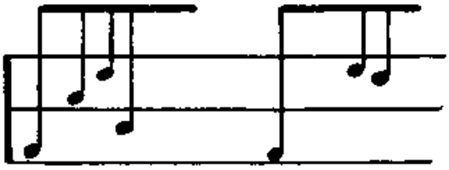


B. On a Register Grid

In Symbolic Durational Notation

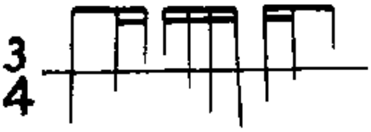


In Proportionate Durational Notation

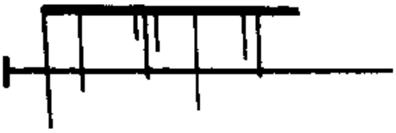


C. On a One-Line Staff

In Symbolic Durational Notation

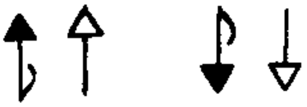


In Proportionate Durational Notation



Comment (on B and C): Register grids and one-line staffs should be printed in place of, and on a level with five-line staffs, not below or above them.

6. HIGHEST AND LOWEST NOTE(S)



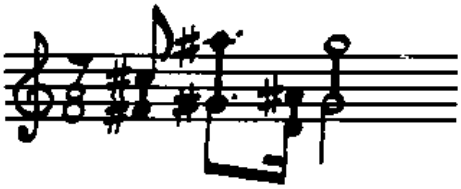
Comment: For stringed instruments, a second, resp. third triangle pointing upward may be added to indicate highest note on two or more strings simultaneously. The sign means the highest string(s), unless otherwise indicated.

7. CLUSTERS

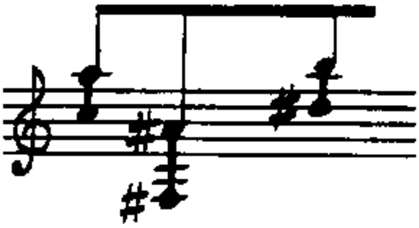
No agreement was reached on any general system of cluster notation. However, we reproduce below the proposals for chromatic clusters, as submitted to the Conference: System of Cluster Notation (for Chromatic Clusters only)

A. Determinate Boundary Notes

Symbolic Durational Notation

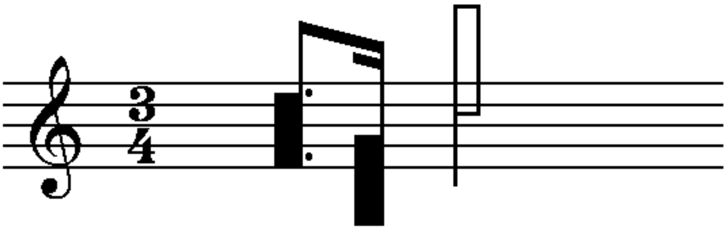


Proportionate Durational Notation

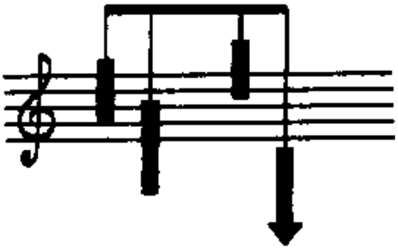


B. Indeterminate Boundary Notes

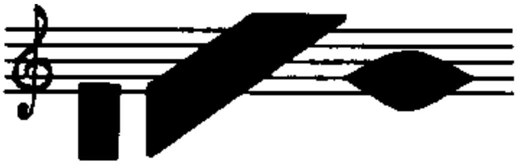
Symbolic Durational Notation



Proportionate Durational Notation With Duration Beams



Horizontal Extensions of Clusters



For specific Keyboard Cluster Notation with distinctions between clusters on white, black, and mixed (chromatic) keys see V.PIANO.

Note: for IMPROVISATION see II.DURATION AND RHYTHM

II. RHYTHM

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1. SYMBOLIC DURATIONAL NOTATION

A. Common Reference Meter

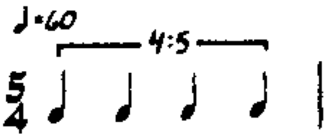
In ensemble music, particularly in music requiring a conductor, all parts should be notated in the same (reference) meter.

Indicate cross meters by other means (e.g. articulative markings).

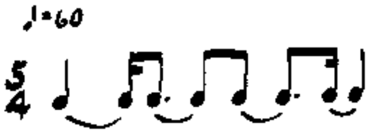
B. Cue Lines

In music where there is a possible confusion in meaning between a) and b)

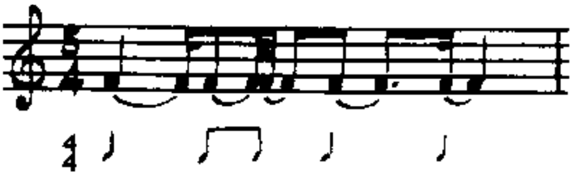
a)



b)

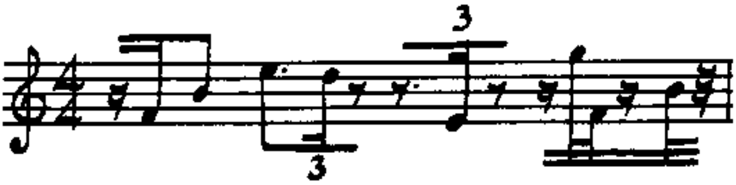


the use of a clarifying cue line is recommended:

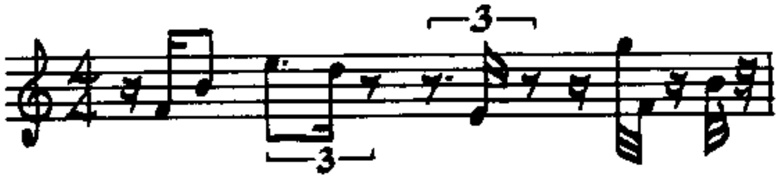


C. Beaming by Beat Units

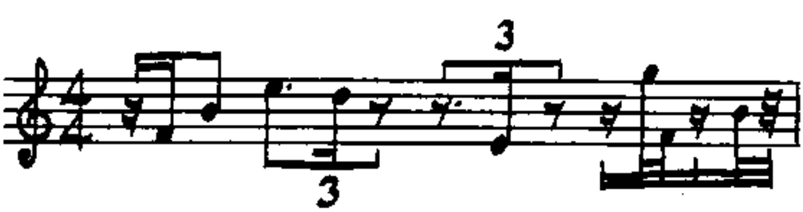
Notes should be beamed according to the beat units – wherever practical – rather than according to phrasing:



(not practical:)

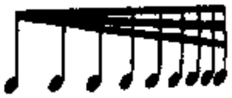


Wherever rests are part of a beamed unit, short stemlets may be added to the beams:

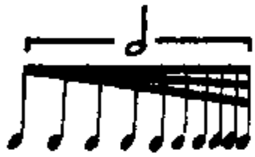


D. Proportionate Notation in Metered Context

If a specific duration for a proportionate notation, e.g.:

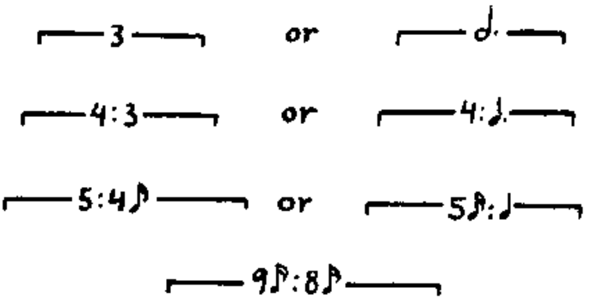


is required in a metered context, the specification should be notated as follows:



E. Irregular Subdivisions

Specification of irregular subdivisions should be notated as follows:



The examples are listed from top to bottom in order of their suitability for contexts of increasing complexity. The simplest specification assuring a minimum of ambiguity should be chosen. When only numbers are used in the equation, both are assumed to refer to the same durational value (e.g., 4:3 – if the 4 refers to sixteenth-note values, then the 3 must also.).

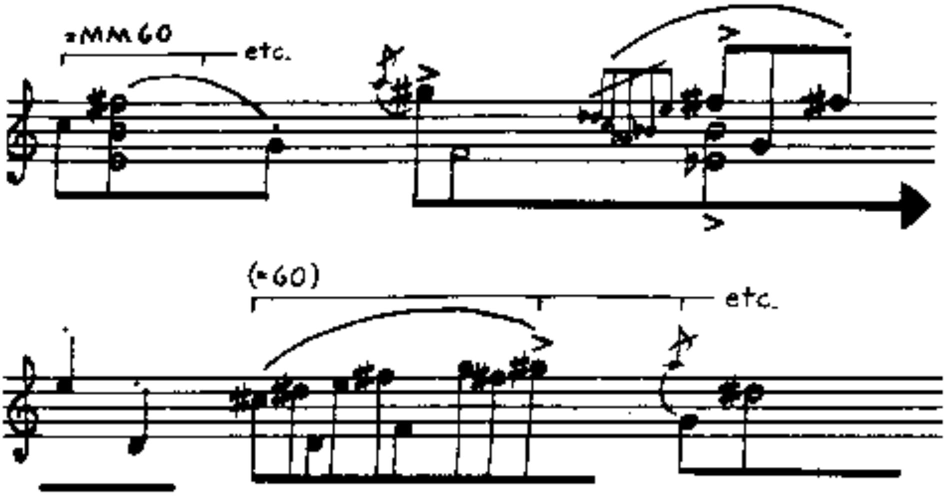
The topmost example in the right-hand column indicates the total time-value, to be subdivided by whatever notes fall within the bracket.

Comment: It is suggested that the colon be replaced by an equal-sign.

2. PROPORTIONATE DURATIONAL NOTATION

Two modes of notation were adopted as equal alternatives, their respective usefulness depending on context.

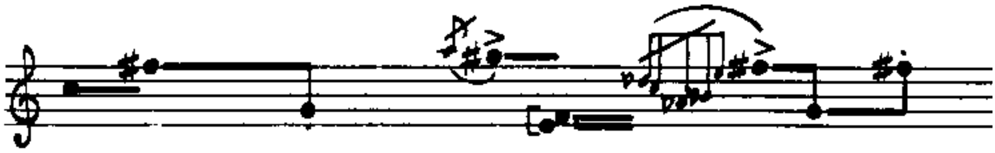
A. Duration Beams



1. Arrow heads at the end of duration beams should be used for notes continuing from one line to the next.
2. Grace notes should be used only for very short values.
3. White and black note-heads may be used for relatively long and short values, respectively.
4. Articulation and dynamic markings, etc., as in traditional notation.
5. In determining horizontal spacing in proportionate durational notation, the amount of space necessary to place accidentals in front of the notes must also be carefully considered.

   Comment: It is suggested that the composer evaluates in advance the proportion beween the longest and shortest durations to be notated, so as to determine the minimum horizontal space required to accommodate the fastest notes in any given piece or movement.
6. If temporary changes in the proportionate spacing become necessary, timing brackets should be used

B. Note-Head Extensions



1. Arrow heads as in 1) above, except that here the arrow heads appear at the note-head extension bar instead of the duration beam.
2. For voice crossings and for legato, vertical connectors may be used.
3. For very short values, small, grace-like notes should be used.
4. If the interval of a second, or a chord in close position, are to be played as a simultaneity, a bracket should be placed in front of the respective notes.

   Comment: Note-head extensions are best suited for single lines. In denser textures (several voices or parts on a single staff) the other, thus becoming difficult to distinguish.
5. Horizontal spacing as in 5 above.
6. Temporary changes as in 6 above.

C. Timing Indications

On the issues of timing indications (by metronome marks, by seconds, by beat dividers, etc.) and of mixtures of different timing methods, no preferences were adopted. Instead, decisions should be from case to case.

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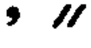
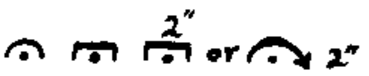
3. PAUSES (SILENCES) AND HOLDS

A. Pauses



B. Holds



Comments:

- The progression within this series of signs (A and B) is generally understood to range from short to long.

- The use of the alternative (longest hold) is discouraged, since the first form, statistically, has already gained near universal acceptance.
- Holds can be used as continuation marks for sounds as well as for silences (i.e., over a note, rest, barline, or over a comma or other caesura) in a metered context, or over a sound-indicator or empty space in a non-metered one.

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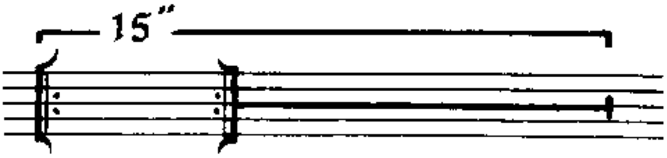
4. INDETERMINATE REPEATS AND IMPROVISATION

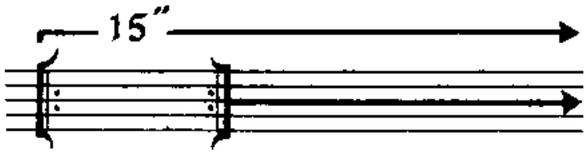
A. Indeterminate Repeats

1. Repeat Sign



Note: The flanges differentiate this sign from the traditional repeat sign.

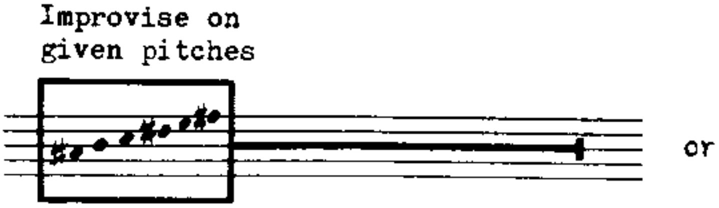
2. Repeat and Continuation Signs

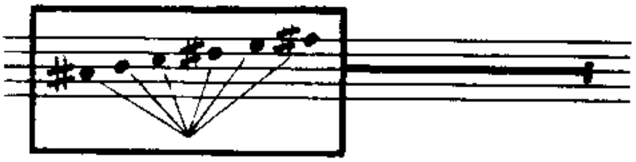


Comment on 1 and 2: these signs may be used both in metered and in proportionate durational contexts.

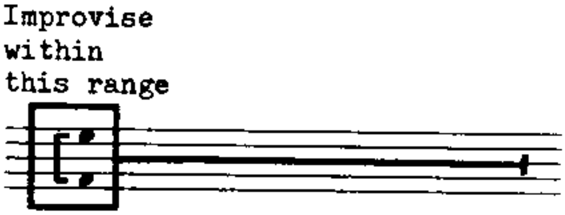
B. Unordered Elements (Improvisation)

1. Given Pitches

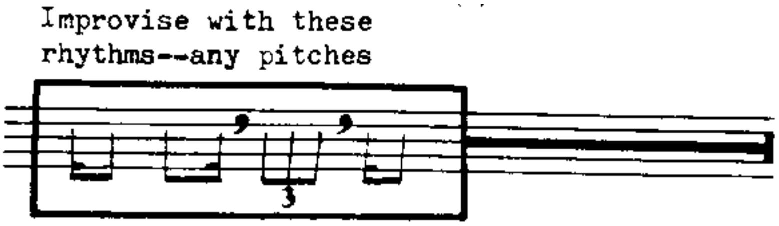




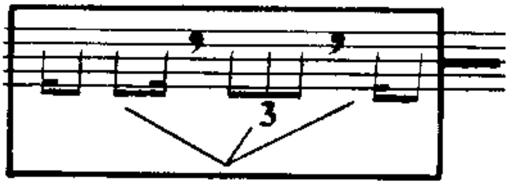
2. Unspecified Pitches Within a Given Range



3. Given Rhythms



or



Comment on 1, 2, 3: These signs may be used both in a metered and in a proportionate durational context. In the latter case, time indications in seconds may be added, as in Example **A,2**, above.

III. DYNAMICS

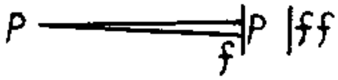
1. BALANCE OF DYNAMICS

The notation of dynamics should not be adjusted for the relative dynamic levels of specific instruments. Instead, each instrument should adjust in its own terms to a ment general dynamic level.

2. GROUP DYNAMICS

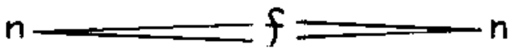
Dynamics applying to groups of instruments or to the entire ensemble may be drawn large below the score and/or higher up, or below a group, instead of for each individual instrument.

3. SUBITO SIGN



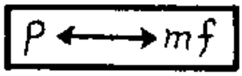
Note: The following signs were suggested by the Index but not discussed.

4. "NIENTE" ABBREVIATION – (n)



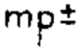
5. AD LIB. DYNAMICS

within specified boundaries

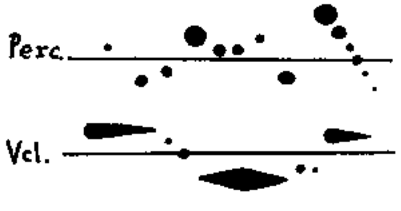


6. FLUCTUATING DYNAMICS

around a given level



7. DYNAMICS INDICATED BY SIZE OF NOTES



Comment on Signs of Articulation: No unambiguous, logical progression of degrees of articulation (such as from staccato via tenuto to different accents), nor of any combinations of such modifiers, has emerged so far, nor have any attempts to

IV. SCORE LAYOUT, CONDUCTING AND SYNCHRONIZATION

1. TRANSPOSING AND NON-TRANSPOSING SCORES

A.

Scores must state whether they are transposing or non-transposing and list any exceptions (such as octave transpositions).

B.

Instruments that traditionally transpose at one or two octaves should continue to be notated in this manner in otherwise non-transposing scores.

C.

In scores that are meant to be used as parts (performance scores) transposing instruments must of course be notated in their respective transpositions.

2. OMISSION OF RESTS

A.

Omission from scores of full-measure rests should be decided from score to score (Never omit them from the parts.).

B.

In rhythmically complex music, the true duration of a full-measure rest should be written out, and it is often beneficial to subdivide the total duration according to the prevailing beat pattern.

C.

When either (a) staves as well as rests are omitted in bars of rest, or (b) an instrument rests for an entire line, it should be decided from score to score whether the middle staff line (and clef and instrument name in the left margin) should be retained.

3. LABELING OF INSTRUMENTS

Abbreviations for relatively unusual instruments should be included in a list of instruments at the beginning of the score, or at the instruments' first occurrence.

4. WRITTEN INSTRUCTIONS

A.

Complete explanations of *all* non-standard notation extensively employed should appear at the beginning of the score. (Isolated occurrences can be dealt with where they appear.)

B.

All *applicable* notational explanations and performance instructions *must* also appear in the respective parts.

5. CONDUCTORS' BEAT PATTERNS

A.

If beat patterns are to be indicated, numbers are preferred to beating-signs.
For ex.:

5 (2+3)
8

B.

If dotted barlines are used to show subdivisions of measures, they must *all* correspond to the conductor's beat patterns, with cross rhythms indicated by means other than bar lines.

> *Index Proposal*: Numbers combined with notes have proved very useful: See **6**. below.

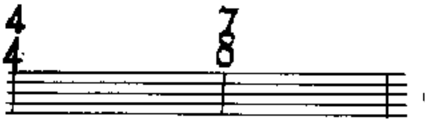
---

6. TIME SIGNATURES

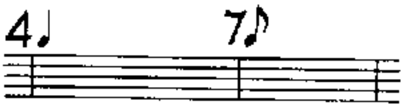
A.

Depending on context and situation (few or many changes of meter, the amount of space available, etc.) the following time signature notations may be used – their respective usefulness to be decided from case to case:

- Large time signatures that go through all, or at least several, staves;
- Time signatures (consisting either of two numerals, or of one numeral and a note-value) placed above the score (and between sections), in which case the signatures should be *centered* above the barlines:



or

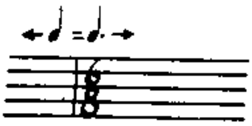


B.

In performance scores, traditional (small) time signatures should be included so that each player has the signature in his individual part.

C.

Equivalent durational values should be clarified with arrows, e.g.:



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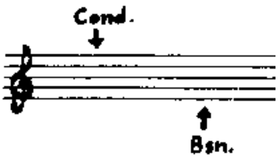
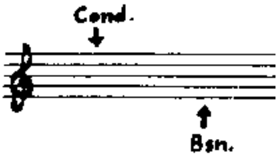
7. CUES

A medium-sized arrow pointing to a player's staff indicates that a cue is to be received from the conductor or another performer:



An arrow pointing away from a player's staff indicates that a cue is to be given to the conductor or another performer:



> *Note*: The identifying indications (instruments or conductor) may be omitted if they seem self-evident or redundant.

In scores, the arrows should be placed above or below the staff, depending on whether the instrument that is to give or receive the cue appears above or below the instrument having the arrow.

In parts, *all* arrows may be placed above *or* below the staff, since the concepts 'above' and 'below' are not applicable.

> *Comment*:To avoid confusion, the arrows must be noticeably heavier (thicker) than the thin ones endorsed for unspecified microtonal inflections.

In the parts, these arrows may also be used as cues to show synchronization with other performers.

---

8. SYNCHRONIZATION

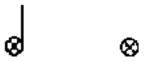
No system(s) of synchronization to be used within proportionate durational contexts was (were) adopted The need for the conductor to use conventional beat patterns must be decided from case to case.

See also INDETERMINATE REPEATS AND IMPROVISATION.

INSTRUMENTAL CATEGORIES

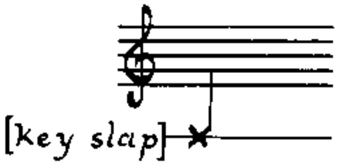
I. WOODWINDS

Note: In all instrumental categories and in vocal notation, the proposals for notating certain unusual, mostly percussive sound effects include the x-shaped note-head. In all these cases, whether the pitch notation is determinate or not, or whether the x-note head appears on a staff or an extra line, whole and half-note durations are indicated by encircling the x to simulate an open note-head:

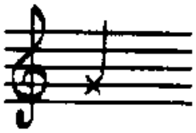


1. KEY SLAP

A. Key slap without Pitch specification



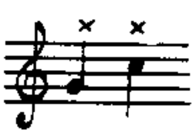
B. Pitched key slap



Note: The pitch indicated is the sounding pitch.

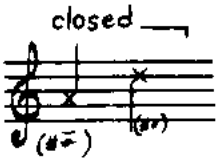
C. Note with key slap

(note to which a key slap is added at the point of attack).



D. Key slap with embouchure hole closed

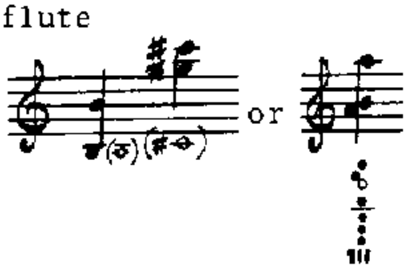
(flute only)



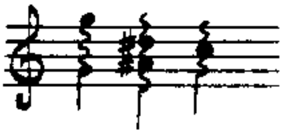
2. MULTIPHONICS

or

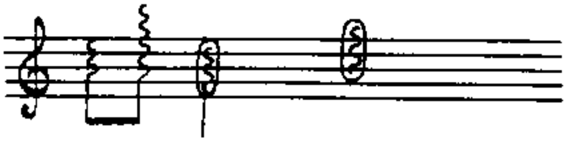
A. Precise notation



B. Prominent pitches only



C. Approximate notation

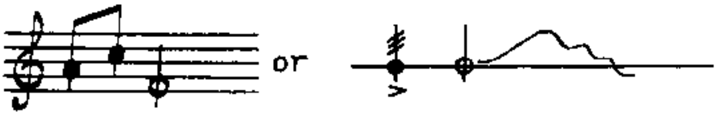


Note: The last two signs indicate durations of a half-note and a whole-note, resp. (similar to the encircled x specifying a half-note in the musical example for N°.6).

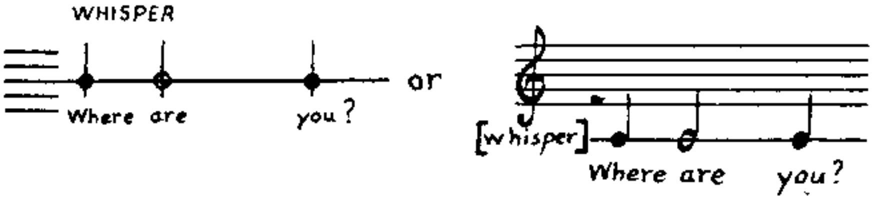
3. BREATHY AIR SOUNDS

A. With Pitch

(more pitch than air sound)



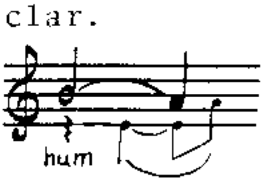
B. Without Pitch: Whispering through the instrument



Note: The one-line staff may appear either below (or above) the regular staff or, preferably, in place of it, in which case it should appear on the level of the third line of the regular staff (See also BRASS,3B).

This notation is distinct from that for ordinary whispering (see VOICE,8), because it refers only to whispering through the instrument

4. HUMMING WHILE PLAYING

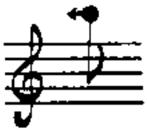


Note: Notated on the same staff and in the same transposition as that of the instrument. The octave position is optional, unless the voice range is specific, in which case an extra staff may be needed.

Comment: See BRASS,7.

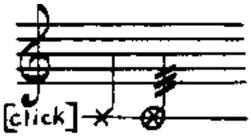
5. SMACKING SOUND

(double reeds)



Comment: See also BRASS,4.

6. KEY CLICKS - AND OTHER NON-PITCHED SOUNDS



Note: The desired effect should be clearly (verbally) specified in each case.

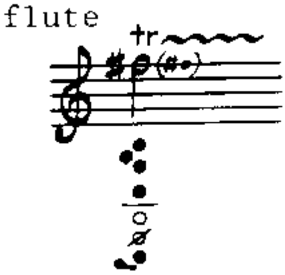
Comment: See also BRASS,2.

7. TRILLS

(other than conventional)

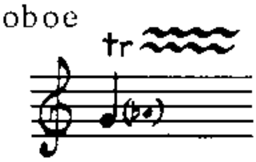
A. Timbral trill

(same pitch)



Note: The fingering of the flute example is optional.

B. Double trill



Note: Double trills serve to produce high-speed trills. The number of possible double trills is relatively small.

8. FINGERINGS

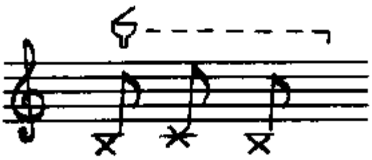
Letters or diagrammatical representations of the keys are preferred to numbers or words. (see Ex.2,A).

Comment: See also BRASS,13.

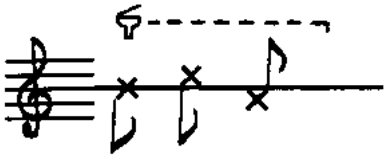
II. BRASS INSTRUMENTS

1. MOUTHPIECE POP

A. Specific Pitch



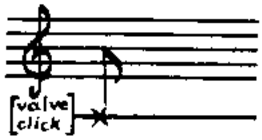
B. Unspecified Pitch



Comment: It is recommended not to rely too confidently on the mouthpiece pop *sign* alone, but to add a verbal indication, at least at first occurrence.

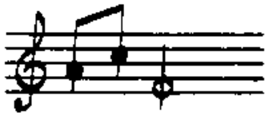
2. VALVE CLICK

(and other non-pitched sounds)

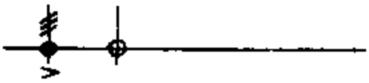


3. BREATHY AIR SOUNDS

A. Approximate Pitch



B. Unspecified Pitch



Comment: See also WOODWINDS,3

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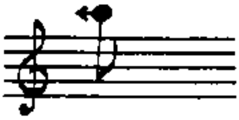
4. SMACKING SOUND



Comment: See also WOODWINDS,5

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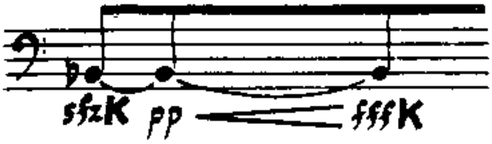
5. CRACKED TONE

Add “K” to dynamic.



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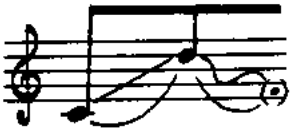
6. GLISSANDI

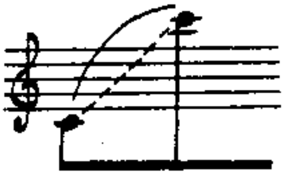
A. Smooth

(including half-valve technique)



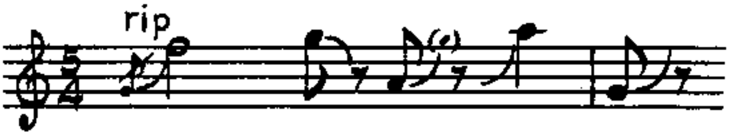
B. “Rip”

(arpeggiato)



It was observed that both types (A and B) may be notated with a curved line.

> *Comment*: It is advisable to add the word “rip” at first occurrence.



See also PITCH.

The broken line signifying a rip (to symbolize the rip’s aperiodic succession of pitches) is likely to become unclear and ambiguous when used within the staff. It is suggested, therefore, to use the curved rip as shown above.

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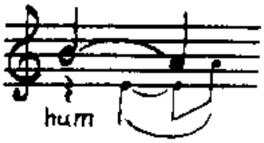
7. HUMMING WHILE PLAYING

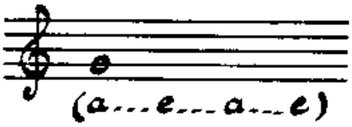


Note: Notated on the same staff and in the same transposition as that of the instrument. The octave position is optional, unless the voice range is specific, in which case an extra staff may be needed.

> *Comment*: see also WOODWINDS,4.

8. TONGUE POSITIONS

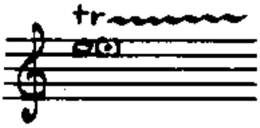
(to change timbre)



Note: International Phonetic Alphabet is preferred; otherwise, particular language should be specified.

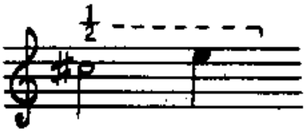
9. TIMBRAL TRILL

(same pitch)



Comment: See also WOODWINDS,7.

10. HALF-VALVE SOUND



Note: 1/2 is a generic sign for half-valve sound and not a specific fingering (Cf. N°.13). To avoid confusion, the addition of a 'v'. (1/2 v.) is suggested.

Comment: The above was only recommended, not endorsed. The use of diamond shaped note-heads also received support:

11. MUTES

A. Labeling

The name of the mute should be used, rather than a pictograph:

- Trumpet and Trombone:
  - straight
  - cup
  - harmon
  - solotone
  - plunger
- Horn and Tuba: mute

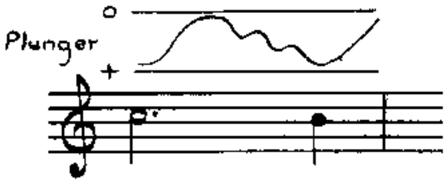
Note: “Wa-wa” is not the name of a specific mute, but rather a description of the timbral effects made with harmon mute or plunger.

B. Changing Positions

(plunger, or hand over harmon mute)

- + = closed
- ⊕ = half closed
- ○ = open
- ○ –> + or vice versa = gradual change
- + | ○ = sudden change

For more precise specifications of motion required, add analog notation on extra grid:



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12. HAND STOPPING

(Horn only).

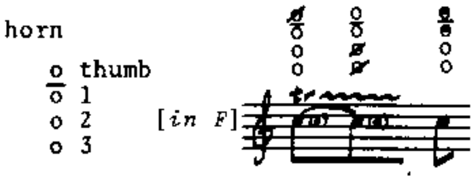
- + = stopped
- ⊕ = half stopped
- ○ = open

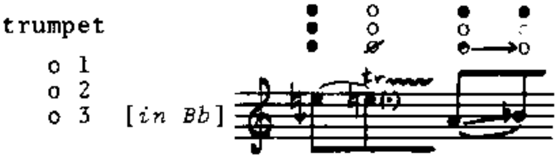
---

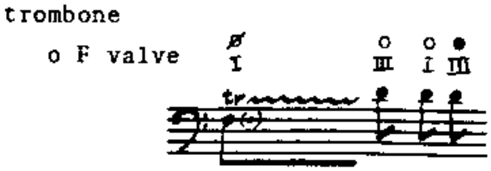
13. FINGERINGS

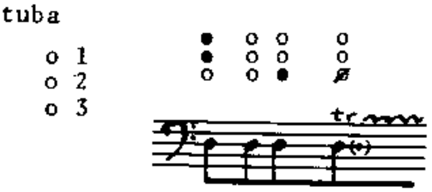
A diagram using the following symbols is preferred to numbers or words:

- ○ = open valve
- ◓ = half-valve
- ● = closed valve
- ○ –> ● or vice versa = gradual change
- ∅ = valve to be trilled





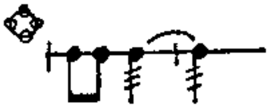


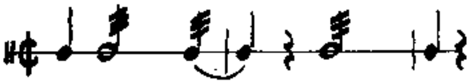


III. PERCUSSION

General Remarks

1. In the notation of simple, short durations for short-decay instruments, use staccato specifications rather than complex rests, especially within syncopated rhythms.
2. Notation for tam tam should be non-pitched; for gong (with or without button), pitched.
3. Membrane instruments are appropriately notated in the spaces of the five-line staff.
4. Rolls are the percussionists' attempt to produce a sustained tone. While the technique will be different from instrument to instrument, the musical intention is the same and should be controlled by the performer. Rolls should be notated as single-pitch tremolos (not trills) with enough slashes (through the stem or near the note head) to prevent interpretation as single strokes:





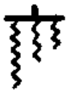
5. Instrument specifications may be put in the margins or over the individual line of music. Stick specifications should appear in a relatively small size over the individual lines. Neither instrument nor stick specifications should appear above areas of rest or silence. Specifics such as pitch or head size can be added to the pictograms (inside, if possible).

Pictograms of Percussion Instruments

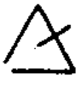
Instruments

The pictograms N°s. 1 through 45, as well as N°. 60, have been endorsed. N°s. 46 through 59 were not discussed in sufficient detail to warrant an endorsement; none was rejected, however, so that they may be considered as having been recommended.

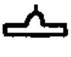
1. Glass wind Chimes



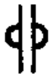
2. Triangle



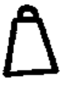
3. Crotale(s) or Antique Cymbal(s)



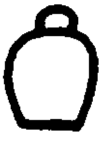
4. Finger Cymbals



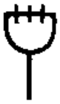
5. a. Cowbell



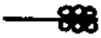
b. Almglocke



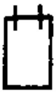
6. Sistrum



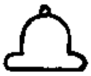
7. Sleigh Bells



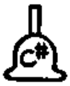
8. Bell Plate



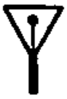
9. Bell



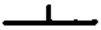
10. Handbell



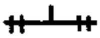
11. Flexatone



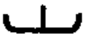
12. Suspended Cymbal



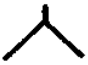
13. Sizzle Cymbal



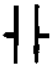
14. a. Chinese Cymbal



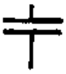
b. Vietnames "Hat"



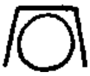
15. Crash Cymbals



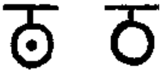
16. High-Hat Cymbals



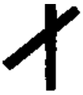
17. Tam Tam



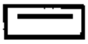
18. Gong (with and without buckle)



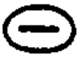
19. Claves



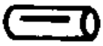
20. Wood Block



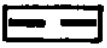
21. Temple Block



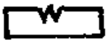
22. Log Drum



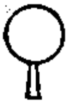
23. Slit Drum



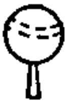
24. Guiro



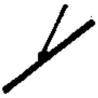
25. Maraca(s)



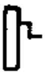
26. Cabaza



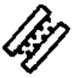
27. Whip or Slapstick



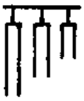
28. Ratchet



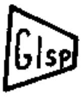
29. Sandpaper Blocks



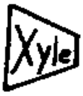
30. Chimes or Tubular Bells



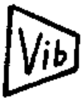
31. Orchestra Bells or Glockenspiel



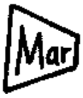
32. Xylophone



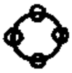
33. Vibraphone



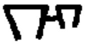
34. Marimba



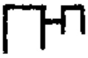
35. Tambourine



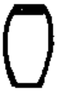
36. Bongos



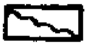
37. Timbales



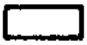
38. Conga Drum



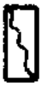
39. Snare Drum (snare on)



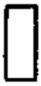
40. Snare Drum (snare off)



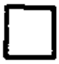
41. Military Drum



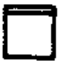
42. Tenor Drum (or Military Drum, snare off)



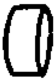
43. a. Tom Tom



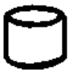
b. Tom Tom with wooden top



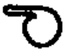
44. Bass Drum (upright)



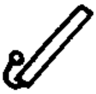
45. Bass Drum (on side)



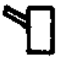
46. Police Whistle



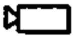
47. Slide Whistle



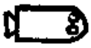
48. Bird Whistle



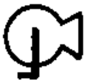
49. Duck Call



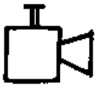
50. Wind Whistle (Mouth Siren)



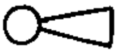
51. Siren



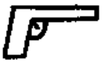
52. Klaxon Horn



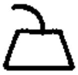
53. Auto Horn (Bulb Horn)



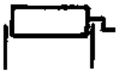
54. Gun



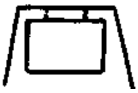
55. Lion's Roar



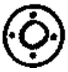
56. Wind Machine



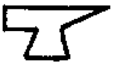
57. Thunder Sheet



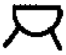
58. Brake Drum



59. Anvil



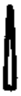
60. Timpano



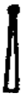
Sticks, Mallets and Beaters

All pictograms listed below have been endorsed.

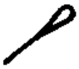
1. Snare Drum Stick



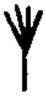
2. Snare Drum Stick with plastic tip



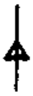
3. Spoon-shaped wooden mallet



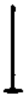
4. Wire Brush



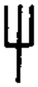
5. Triangle Beater



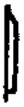
6. Knitting Needle



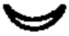
7. Guiro Scraper



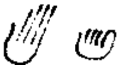
8. Bow



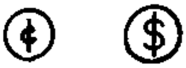
9. Fingernail



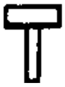
10. Hand, Fist



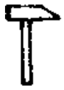
11. Coin



12. Chime Hammer

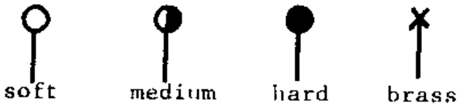


13. Metal Hammer

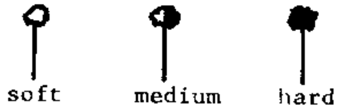


Mallets specified by general type and by degree of hardness which indicates sound desired

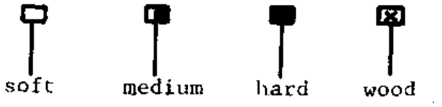
14. Rubber, Plastic (Xylophone, Orchestra Bells)



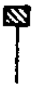
15. String-or Yarn-wound (Vibes, Marimba, Suspended Cymbal)



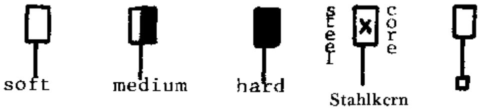
16. Timpani Mallets



Comment: since the “x” has been used to indicate metal, it is suggested to substitute a striped box for the head of the wooden timpani mallet.

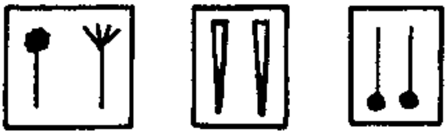


17. Bass Drum and/or Tam Tam Beaters

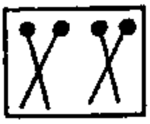


Combinations

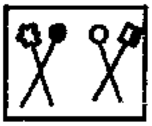
- All combinations should be boxed
- Do not indicate L.H., R.H. at top of box
- Always draw the striking end next to top of box



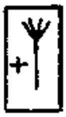
18. Two of same mallets or sticks in one hand



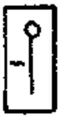
19. Two different mallets or sticks in one hand



20. Add stick or mallet, etc.



21. Drop stick or mallet, etc.



Percussion Notation

1. SCORE ORDER

- Glass, metals, and hanging objects
- Woods (non-pitched)
- Pitched Instruments in Keyboard Arrangement
- Membranes (non-pitched)
- Effects
- Timpani

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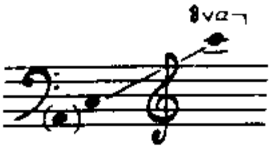
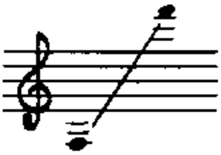
2. WRITTEN RANGES OF PITCHED INSTRUMENTS IN KEYBOARD ARRANGEMENT

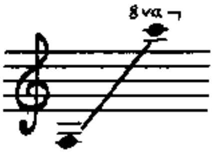
A. Marimba



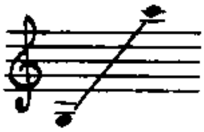
B. Vibraphone



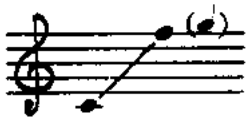
C. Xylophone, sounding 8va higher



D. Orchestra Bells, sounding 15ma higher

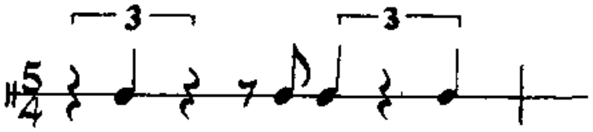


E. Tubular Bells or Chimes

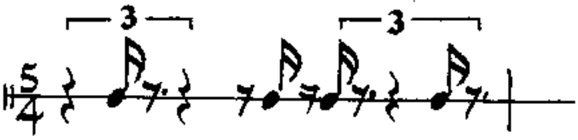


3. WRITING FOR SHORT-DECAY INSTRUMENTS

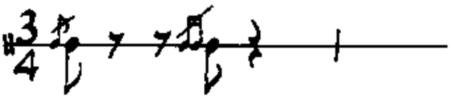
a. General



Rather than:

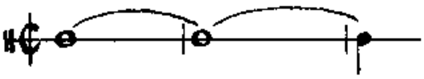


b. Flam and Ruff

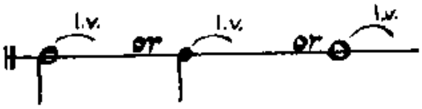


4. WRITING FOR LONG-DECAY INSTRUMENTS

a. Determinate decay

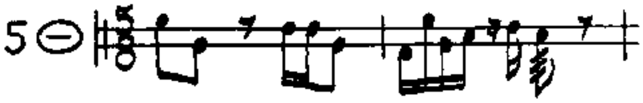


b. Indeterminate decay

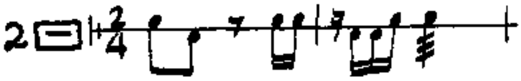


5. NOTATIONS FOR FAMILIES OF INSTRUMENTS

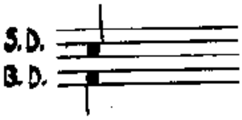
- In multiple percussion scores
    1. five temple blocks



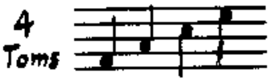
. two wood blocks



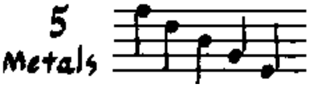
- In staff-notated percussion scores
    1. snare drum and bass drum



2. four tomtoms

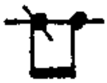


3. five metals

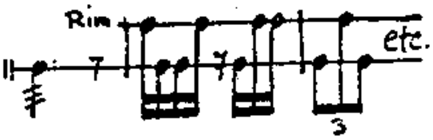


Comment: Cf. General remarks

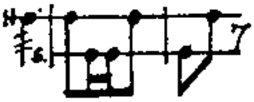
6. RIM SHOT



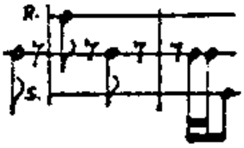
7. PLAYING ON THE RIM



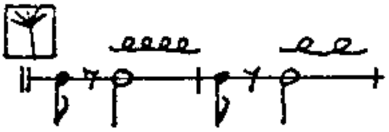
8. PLAYING ON THE SHELL



Combination: normale, rim and shell



9. BRUSH SWISHES

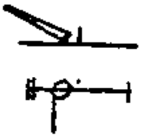


10. LOCATION

DISCRETE CHANGES

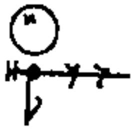
A. Suspended cymbal

near crown



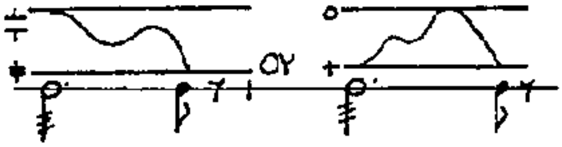
B. Drum

edge

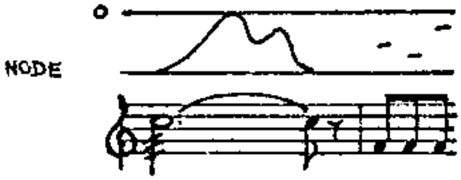


GRADUAL CHANGES: ANALOG NOTATION

C. High-hat cymbals

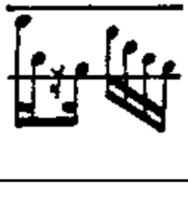


D. Xylophone bar



E. Drum

(Elbow- or hand - controlled pitch changes)



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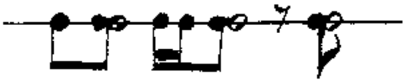
11. “DEAD STICK”

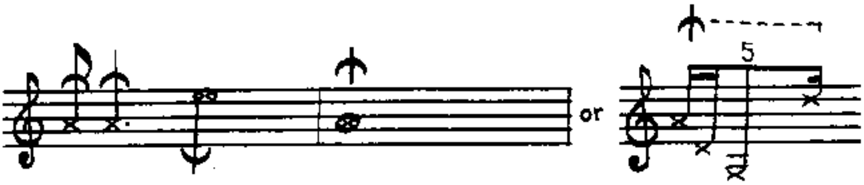
(playing without stick rebounding)



IV. BOWED STRING INSTRUMENTS

1. PLAYING BEHIND THE BRIDGE

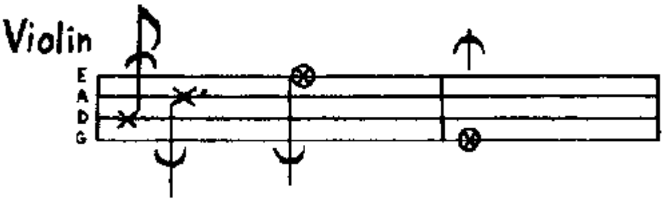
A. Staff Notation



Note: For a number of consecutive notes, the symbol is placed above, with continuation mark.

Comment: In writing single eighth-notes and shorter values, the curve of the symbol must be drawn carefully to avoid confusion with the flags.

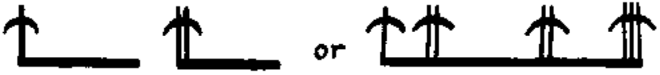
B. Tablature Notation



Note: The "string staff" (mostly a four-line staff) represents the strings of an instrument, rather than a grid for pitches. Its lowest line represents the lowest string. (Labeling the lines with letters denoting the strings is optional).

The "string staff" should be clearly distinguished from the ordinary five-line staff by spreading its lines farther apart. This is particularly important when "string staffs" and ordinary five-line staffs alternate.

C. Non- Staff Notation

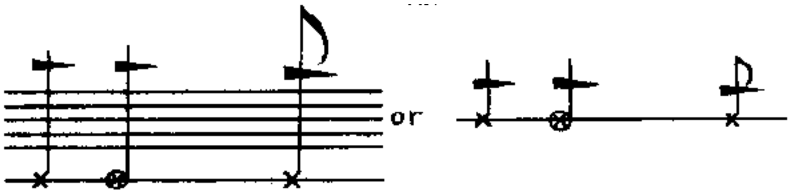


Note: Non-staff notation is especially recommended for use in proportionate durational notation, because it does not require note-heads. However, if symbolic durational notation is desired, x note-heads must be used to indicate durations. String indications need only be given if specific strings are to be used. Omission of string indications means that the choice of strings is left to the performer.

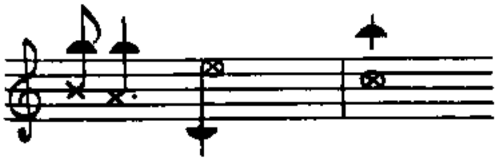
Comment: For arpeggio, see 13..

Comment on A, B and C:"Playing" behind the bridge always means "bowing", unlessthe specification Pizz. or Pz (see 14.) is given.

2. BOWING ON THE TAIL PIECE



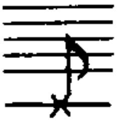
3. BOWING ON TOP OF THE BRIDGE



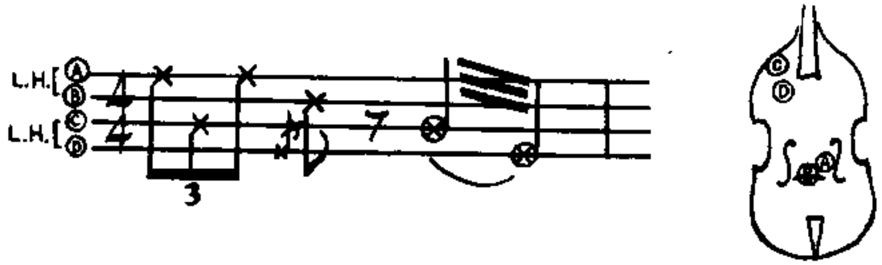
Note: This effect is not to be confused with 'ponticello' playing (which supposes "ponticello" bowing next to, not on top of the bridge).

4. TAPPING OR STRIKING THE BODY OF THE INSTRUMENT

A. Isolated, Unspecified Spots



B. Extended Passages on Specified Spots



Comments:

- The example naturally shows only a few of the possible spots available for this effect.
- Letter names may be assigned to any spots used in a given composition.
- See the Note to 1 B, last paragraph.
- Note-values longer than a quarter-note should not be used, since the sound is always short. Thus no encircled x note-heads are needed, except in tremolos.

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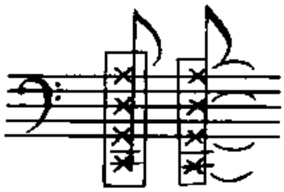
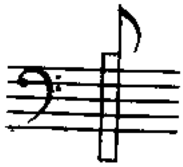
5. STRIKING THE STRINGS

A. Specified Pitches



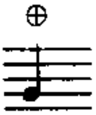
B. Unspecified Pitches



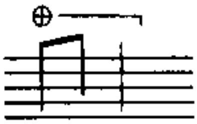
Note to A and B: An added verbal instrution (e.g. 'strike with palm') is recommended at first appearance.

6. FINGERING WITHOUT BOWING

A. Specified Pitches



B. Unspecified Pitches



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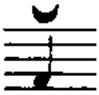
7. PIZZICATO

(see also 14)

*Preliminary Remark:*Attention is drawn to the fact that the pizzicato technique and notation should be treated as a general problem pertaining to all stringed instruments (including guitar, harp, keyboard stringed instruments, etc...). The many different types of pizzicato have not yet been consistently classified, nor has their notation in any way been systematized.

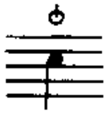
The Conference therefore suggests that steps be taken towards estabhshing a basic symbol for pizzicato, that could be expan ded and/or varied to cover all possibilities. Thus, the adopted proposals below are presented as tentative solutions which could be reevaluated when an overall schema for pizzicato notation is formulated.

A. Pizzicato with the Fingernail

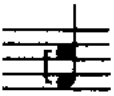


Comment: Do not confuse with ‘Buzz’- pizzicato (the string rebounding against the fingernail), for which this sign was proposed, but not adopted:

B. Bartok Pizzicato



C. Two-Finger Pizzicato



Comment: In proportionate durational notation, care should be taken not to confuse the present sign with the one adopted for the indication of simultaneous seconds (see II,2,B,Remark4).

It should also be pointed out that the same sign is used for "Improvisation within a given range" (see II,4,B2). The differences of context and of graphical size, however, reduce the risk of confusion.

Note: The sign for left-hand pizzicato (+ above the note), being already well established, is herewith also proposed for standardization.

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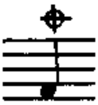
8. MUFFLE THE STRINGS



Comment: The action meant involves bowing on an open string, the left hand muffling it (taking care to avoid harmonics).

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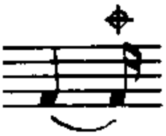
9. DAMP THE STRINGS

("Etouffer")



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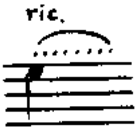
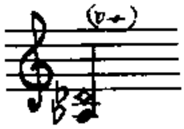
10. RICOCHET



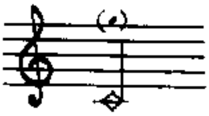
11. HARMONICS

It is recommended that all harmonics be written with the tablature and the resultant, as follows:



Comments:

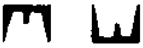
- No exceptions from this rule should be made in parts. In (orchestral) scores, however, only the resultant may be shown, or possibly with the tablature in parentheses. If a horizontal space problem arises, the resultant pitch may be placed right above the tablature.
- In the (rather exeptional) case where confusion is possible between an artificial harmonic and a double stop consisting of a stopped note and a natural harmonic a fourth higher, the issue should be clarified by specifying the two strings involved in the latter case.
- No proposal for the notation of natural harmonics was adopted, but a logical extension of the above form to include natural harmonics would be:



- The original Index proposal consisted of notating the sounding pitch as a normalsized note (with stem, flag, etc.) and the traditional small circle. Tablature indications (if any) would then be specified with cue-sized note heads (without stems, flags, etc.) and placed in parentheses.

12. SORDINO

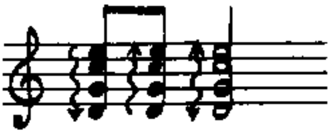
The following signs were adopted for '*con sordino*' and '*senza sordino*', respectively:



Note: The signs must be placed as early as possible, so as to give the player the maximum time available for the required manipulations.

13. ARPEGGIO

The following symbols were adopted for arpeggio, downward, upward, and down and upward, respectively:



Note: These signs may apply to ordinary playing as well as to playing behind the bridge (see 1).

14. TIMBRAL SPECIFICATIONS AND THEIR ABBREVIATIONS

The following abbreviations were adopted:

- Capital initials
    - Arco: Ar
    - Pizzicato: Pizz, Pz., Pizz.
- Lower case, with periods
    - Sul ponticello: s.p.
    - Ordinario: ord.
    - Normale: n.
    - Sul tasto: s.t.
- Lower case, no periods; letters connected
    - Col legno battuto: clb
    - Col legno tratto: clt

Note: Arco and Pizz are to be used as mutually canceling signs. “n.” or “ord.” should only be used to cancel s.p., s.t., clb and clt.

Comment: Where a continuation sign is used to indicate the range of extension of s.p., s.t., clb or clt (implicitly indicating its end), the “n.” or “ord.” sign would be superfluous.

V. PIANO

1. PEDALING

A. Labels

𝆮 use for damper pedal only; use ordinary type for all other pedals, i.e., not only the Sostenuto Pedal of the piano but organ pedals, vibraphone pedal, etc., as well. It should be added that although the distinction between the traditional sign and Ped. in ordinary type was not discussed, it was found appropriate to make the above distinction .

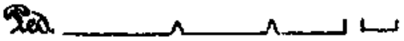
Sost. Ped. (Note: S.P. is considered unsatisfactory because it may be misread as "Senza Pedale".)

"Una Corda" (Note: U.C. is considered less objectionable.)

Comment: The vertical order should always be as given above.

B. Changes and Final Release

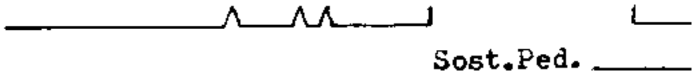
1. **Damper Pedal**: If greater precision of pedaling is desired than can be notated by the traditional sign: 𝆮 followed by 𝆯 the following notation should be employed:

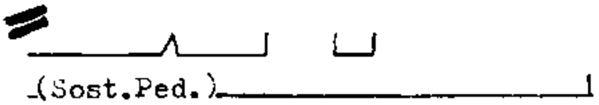


Note: The sign 𝆮 need only appear at the first damper pedal indication in a given movement. Subsequent indications begin with a down-stroke.

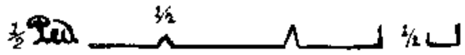
The depression of the pedal begins at the letter P (or S or U, resp.). The release of the pedal is often less abrupt and precise than a vertical stroke implies, for which reason the sign 𝆯 was actually preferred by a number of participants.

2. **Other Pedals**: Use the same method as in 1. To avoid ambiguities as to which pedal is intended, repeat the pedal indication whenever it is not self-evident which pedal is wanted. Also repeat the pedal indication in parentheses when the pedal in question is continued on the following line.





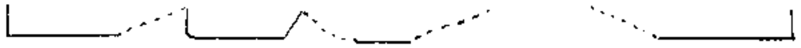
C. Half Pedal



Note: Unlike the other pedal indications, the "1/2" should be repeated at each new depression, and if continued to the following line, placed in parentheses.

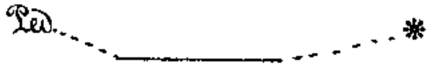
Comment: From here on, traditional pedal notation is no longer practical because the continuation-line-and-bracket notation now becomes essential for making precise indications.

D. Gradual Depression, Change, and Release



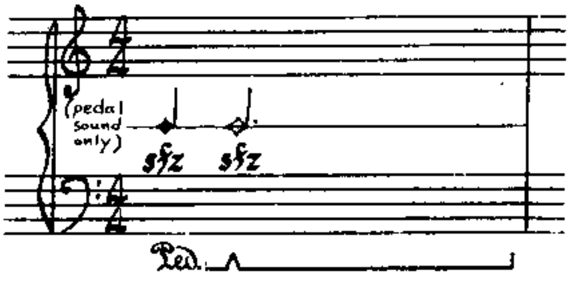
Comment: Gradual pedaling can also be indicated with solid lines, but it was felt that the dotted line draws more attention to itself.

Note: To avoid misunderstanding, it was found advisable to raise the Ped. to the level of the beginning of the broken line. Similarly, an asterisk may be added to the end of the broken release line, if precise timing is desired.

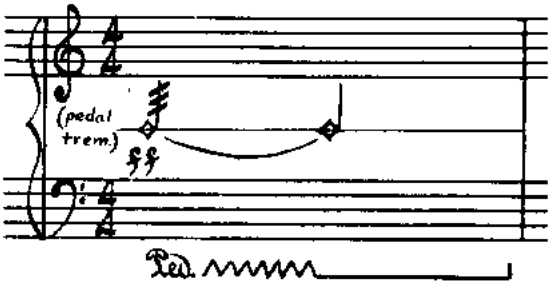


E. Pedal Sound Only

1. Single attack(s):

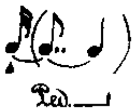


2. Tremolo



Comment: The single line and the diamond-shaped note-heads need to be placed between the staves only if precise entrances or rhythms, etc., are called for. However, it is advisable always to add a verbal designation at first occurrence.

F. Catching Staccato Reverberations with the Pedal



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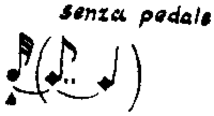
2. STACCATO ATTACK



Note: The diamond-shaped note-head was adopted as a general symbol for the silent depression of a key; in order to increase its visual clarity, especially if it appears within the five-line staff, it was recommended that it be drawn with four slightly concave sides (see also 3 below).

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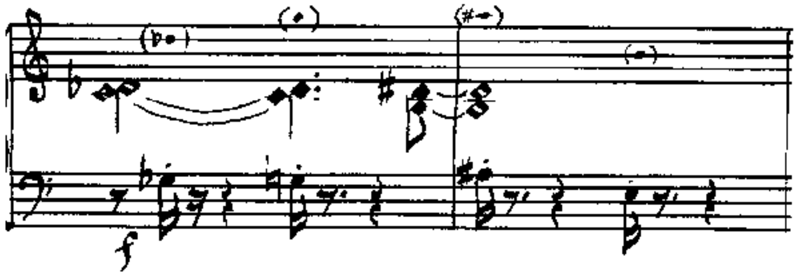
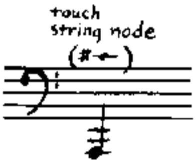
3. HARMONICS

A. By silently depressing the keys



Note: Notation of the resultant is optional.

B. By touching the string inside the piano



Note: The written instruction that a string node must be touched need only be added at first occurrence.

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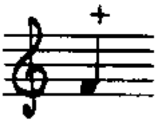
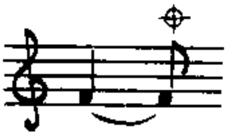
4. INSIDE THE PIANO

Preliminary Remark: Piano manufacturers should be persuaded to color dampers black and white to duplicate the black and white arrangement of the keyboard thus to facilitate playing inside the piano.

A. Muffle or "stop" string with free hand

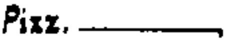


B. Damp with free hand



Comment on A and B: See also BOWED STRING INSTRUMENTS, 8 & 9.

C. Pizzicato



Notes:

- It is urged that no symbols be used to replace "Pizz."
- The extension bracket is optional; it can be replaced by the verbal indication "ord. " when the "Pizz." instruction is to be canceled.

Comment: It should be borne in mind that this manner of canceling differs from the recommendations concerning Bowed String Instruments (See there 14,Note).

If a specific timbre is desired it is necessary to indicate how and/or where the string is to be plucked.

The different pizzicato styles on the piano must be classified in accordance with those on all other stringed instruments (See BOWED STRING INSTRUMENTS, 7).

If the pizzicato continues to the next line, the Pizz. indication should be repeated in parentheses.

D. Harmonics

Cf. 3.B. above.

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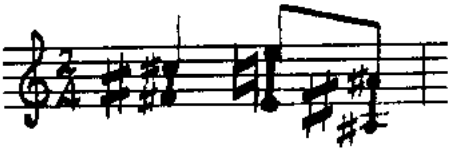
5. CLUSTERS

Piano clusters should be considered chromatic, unless otherwise indicated

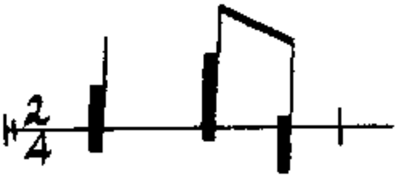
Black-key clusters and white ones, respectively, are indicated by a large sharp (flat)or natural in front of the cluster symbol.



No accidentals need be used if only one kind of cluster (black, white, or chromatic) is intended in a given composition, but a statement as to which type is wanted must then be made at the beginning of the score.

If a boundary key of a cluster is black, the sharp or flat indicating it must be clearly distinguished in size from the large accidental that indicates the black or white-note type of the entire cluster.

For clusters with indeterminate boundary notes, the five-line staff should be replaced by a single-line staff (middle line of the five-line staff).



In a metered context, the cluster symbol is combined with symbolic durational notation (See Ex. above).

In a proportionate context, the duration of the cluster is indicated either by the extension of the cluster box itself, or by a duration beam (See PITCH, 7.A,2 and 7.B,2)

> *Comment:* Duration-beam notation seems advisable for clusters which overlap in pitch and/or in duration, because such notation affords greater visual clarity. The same holds for comparatively wide and/or long clusters because of graphic elegance!

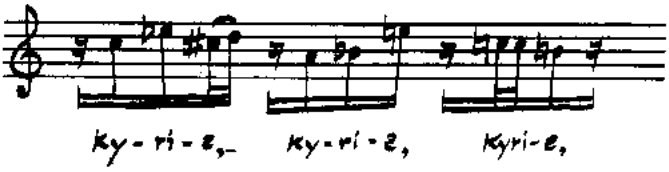
Symbols for cluster-playing techniques (relaxed or tightly closed fist, palm, or edge of the hand, forearm, etc.) are not yet widely enough in use to be suitable for standardization.

VI. VOICE

General remark: Vocal notation should be analogous to instrumental notation whenever possible (See, e.g., item 1 below).

1. BEAMING

The beaming of notes in vocal notation should be exactly as in instrumental notation (see RHYTHM AND DURATION 1, C).



2. INTERNATIONAL PHONETIC ALPHABET

Vocal sounds which are not part of a verbal text should, whenever possible, be specified by means of the International Phonetic Alphabet.

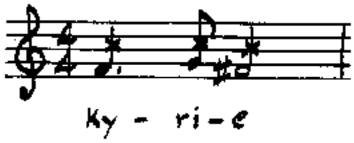
> *Comment:* See also BRASS INSTRUMENTS, 8.

3. SPRECHGESANG, SPRECHSTIMME, SPEAKING

Comment: In *Sprechgesang*, pitch specification is possible at the level of traditional notation; in *Sprechstimme*, it can not be at the level of traditional notation; in speaking, it is only a matter of general “shape”.

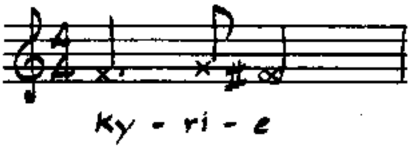
A. Sprechgesang: “Song-like”

(exact pitch)



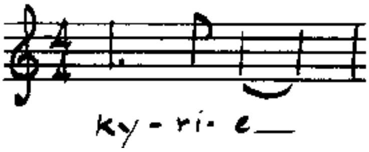
B. Sprechstimme: “Speech-like”

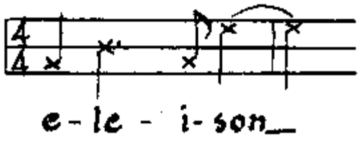
(relative, approximate pitch)



C. Speaking

(no specific pitch)





Note: Where possible, the five-line staff should be omitted in the notation of speech.

In general, x-shaped note-heads should be used for non-voiced sounds. (In specific cases, additional signs, abbreviations, or verbal instructions may be needed.)

In metered contexts, dots, if needed, should be placed next to the stem-ends that normally would have the note-heads.

Comment: Type 2 Speaking notation (right) is proposed as an alternative to the headless stem notation (type 1, left) which may be difficult to read because its lack of note-heads makes the notation of durations (quarter-note versus half-note) impossible, nor is it possible to know which end of a stem without flag is the one that indicates the approximate pitch.

There could be an ambiguity, however, between the Speaking notation type 2 and the *Sprechstimme* notation, should the latter appear in the context of a high-medium-low register grid. It is suggested that if the x-shaped note-heads are used to indicate Speaking, they should always be labeled as such.

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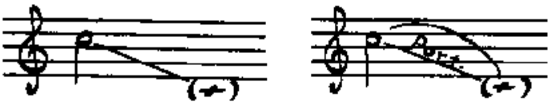
4. PORTAMENTO

Vocal portamento should be distinguished notationally from a glissando by the addition of the abbreviation "port."



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5. MOUTH POSITIONS

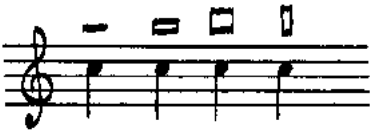
Closed

Partially open

Open

Pursed

Note: These symbols should appear above the notes to which they apply. Absence of signs indicates discontinuation of specified mouth position.

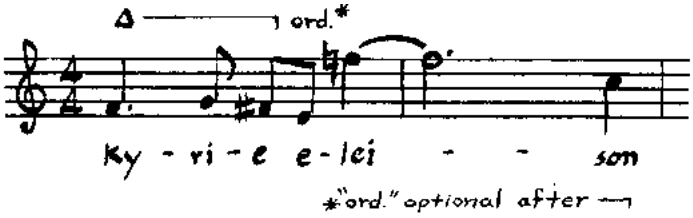


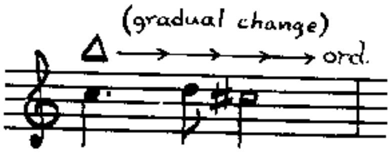
Comment: This solution differs from the general proposals adopted for continuation and discontinuation indications. It is suggested, therefore, that the symbol not be repeated, but that it be canceled either by the ending of the continuation line, or by the abbreviation “ord.”.

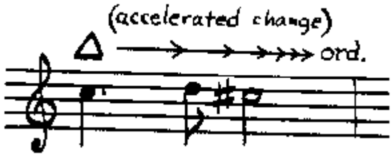
For gradual changes of mouth positions, use the transformation mark used in 6.

6. NASAL SOUND

Comment: See the comment on 5. Cancelation of the indication for nasal sound (i.c. returning to “normal”) should be shown by the end-stroke of a continuation mark, or by the abbreviations “ord. “ or “n.”

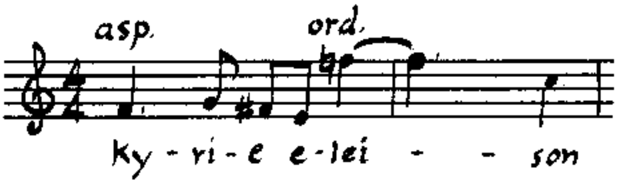






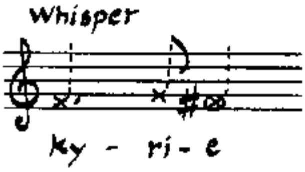
7. ASPIRATION

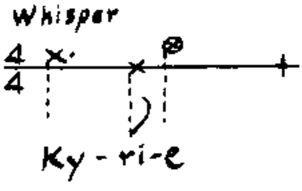
Aspiration (i.e., aspirating a sound) should be indicated with the abbreviation “asp.” and canceled with “ord.”



8. WHISPERING

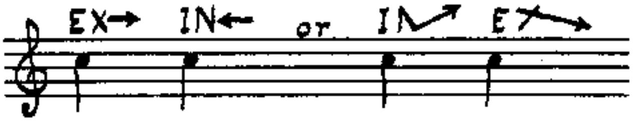
The notation for Whispering should be the same as for Speaking, except that broken lines are used for the stems:





9. INHALE, EXHALE

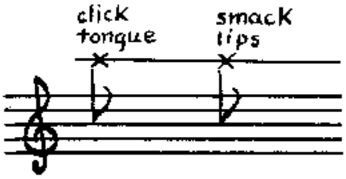
Inhale: IN
Exhale: EX



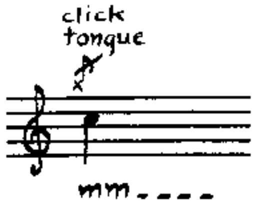
Comment: For cancelation, see the previous comments.
These signs should appear above the notes (or verbal text, if there are no note indicators) to which they apply. For audible inhales or exhales as such, without text, etc., use these signs in conjunction with the whisper notation.

10. UNVOICED VOCAL EFFECTS

Clicks (tongue), smacks (lips), and other unvoiced effects should be notated with an x-shaped note-head and labeled.



Comment: If effects of a specific pitch are desired, the notation should appear on the staff; if not, either a one-line staff or a register grid should be used.
If effects are used only occasionally, as auxiliaries to ordinary singing or humming, an extra line is not necessary.



11. NON VIBRATO

Non vibrato should be indicated with the abbreviation "n.v."

> *Comment:* Though the issue was not formally discussed in connection with the Bowed String Instruments, it may be stated that the n.v. abbreviation adopted above is in general use for these instruments. It should be preferred to S.V. (Senza Vibrato).

12. FALSETTO

Falsetto should be indicated by the word in full.

VII. ELECTRONIC MUSIC

Introductory Remark

The lack of specific responses to the questionnaire and the lack of standardization of electronic music systems themselves prevented the preparation of proposals for this group. It was decided to propose a notational system which could be employed in scores for Live Electronic Music and as an aid for the composer working in a studio. We did not attempt to propose means of notating prepared tapes for the benefit of listeners or for performers playing in connection with them. Thus we were not concerned with means of representing the "sound" of Electronic Music, but rather with notating the technical means of generating it. The symbols proposed relate closely to several notational systems already in existence and, if anything, are both a codification and simplification of these.

General Remark

The vocabulary of this report – especially module and function names – is itself proposed as "standard" in the knowledge that much terminological confusion, overlap, and inconsistency now exists.

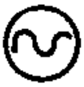
1. CIRCUITS

Three simple geometric figures are suggested to represent the three basic types of EM circuits. The figures may be altered to represent various generic types and to accomodate necessary information as to the function of the module. The adoption of these figures not only takes into account existing systems of EM notation but also reflects the conventions of block diagrams used in electrical engineering.

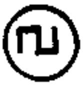
A.

The circle (expanding to an oval) is suggested to represent any "sound source" such as oscillators, pulse generators, and noise or random voltage generators.

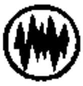
Sine Wave Oscillator



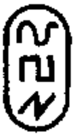
Square Wave Generator



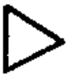
Noise Source



Multiple Wave-Form Oscillator



B.

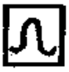


The triangle (pointing to the right) is suggested to represent any type of amplifier or amplification function. This includes Pre-amplifiers, Power Amplifiers, Expansion Compression Amplifiers, Voltage-Controlled Amplifiers, and Mixers.

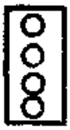
C.

The square (expanding to a rectangle) is suggested to stand for just about every other type of module.

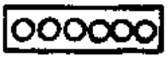
Band-Pass Filter



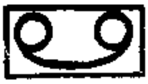
Envelope Generator



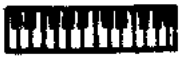
Sequencer



Tape Recorder



Keyboard

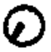


Note: Further definition of module type or its internal functions may be accomplished through the use of symbols (as the above-pictured wave forms), words, or (better) abbreviations (See Symbols & Abbreviations).

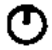
2. POTENTIOMETERS

The small circle is suggested to represent a potentiometer, even if the specific system employs linear or sliding pots. Radius lines within these circles may be used to notate percentage of rotation for general purposes. A more specific means may be used by the employment of a percentage sign within the circle itself. This may stand for either the percentage of a signal which is allowed through an attenuator or for modulation index. An indication too large to fit within the circle (such as frequency or specific voltage) may be placed above or below the figure.

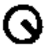
Pot set at “0”



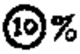
Pot set at 50%



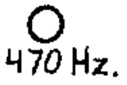
Pot set at 100%



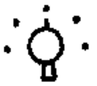
Pot with 10% setting



Frequency Indication

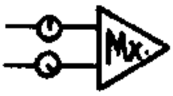


Rotary Switch

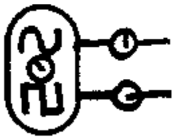


Note: To prevent module representations from becoming too cluttered, it is suggested that input and/or output attenuators be placed outside the figure itself, either within or above the line indicating a connection. This allows for the inside of the figure to contain function-representations and any “internal controls” such as “Initial Gain” or “Fixed Control Voltage” and Center Frequency, etc.

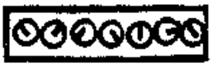
Mixer



2 Wave-form Oscillator



Sequencer



Comment on 1 and 2: This system of module-notation can apply to just about any analog EM system and can help make it possible for music composed on one system to be realized on another type. To aid such a process, the following suggestions are made:

1. The module notation should only indicate the controls and connections employed in the given patch and not all the ones any given module might have.
2. Some EM systems employ modules which are actually a combination of two or more types of circuits (for instance, two systems employ combination Low-Pass Filter and Voltage Controlled Amplifier modules). In such cases we recommend that two distinct figures be used if both functions are employed. A dotted line around the figures could be used to indicate their combined nature. On the other hand, if only one function is employed, only a single figure should be used.

3. While almost all EM systems stress AC/DC input compatibility (that is, a control voltage or an audio signal would be sent to the same input of an oscillator, for example) these inputs are differently labeled by various designers. Thus it is suggested to use the term *Modulation* as a general expression of "change", irrespective of the frequency of the modulating signal, or even if it is DC. In this way it is easy to differentiate between "signal" and modulation (control) inputs throughout a system.

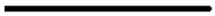
---

3. CONNECTIONS

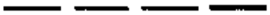
Lines may be used to represent connections between modules irrespective of how patching is accomplished in any specific type of EM system. Two alternative methods are suggested.

1. Unbroken lines represent all connections.
2. The following line-types indicate different types of voltages:

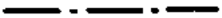
AC Voltage



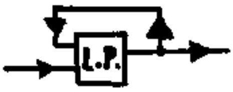
DC Voltage



Pulses or Triggers



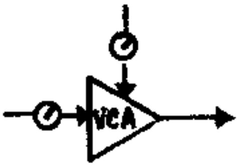
Note: Arrows may be used within or around these lines to indicate the direction of information flow. Arrows may also be used around the module symbols to clarify input or output. E.g. Feedback loop around a filter.



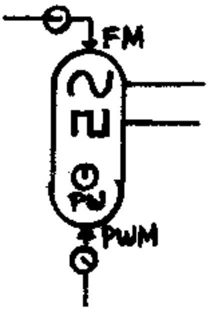
To differentiate this notational system from that used in computer technology, information will, in general, flow from left to right. In a patching configuration, signal and control voltage sources will tend to be on the left side of the diagram while processors will be toward the right. Module symbols themselves will also conform to this plan.

- Signal Inputs will be on the left.
- Modulation or control inputs may be on the top and/or bottom of the figures.
- Outputs will be on the right.

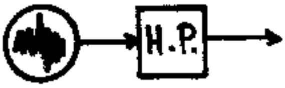
Signal and Control inputs to a Voltage Controlled Amplifier:



Control and Pulse-Width Modulation inputs to a 2 wave-form oscillator, also with internal pulse-width offset of 50%:



Noise source into a High-Pass Filter



It is suggested that the following flow-chart conventions be followed:

- Crossed lines with a dot indicate a connection.
- The same signal taken at two points is indicated by a “Y” connection, even if two outputs appear in the module itself.
- Lines crossed but not electronically joined are indicated in the conventional manner.

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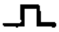
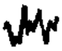
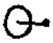
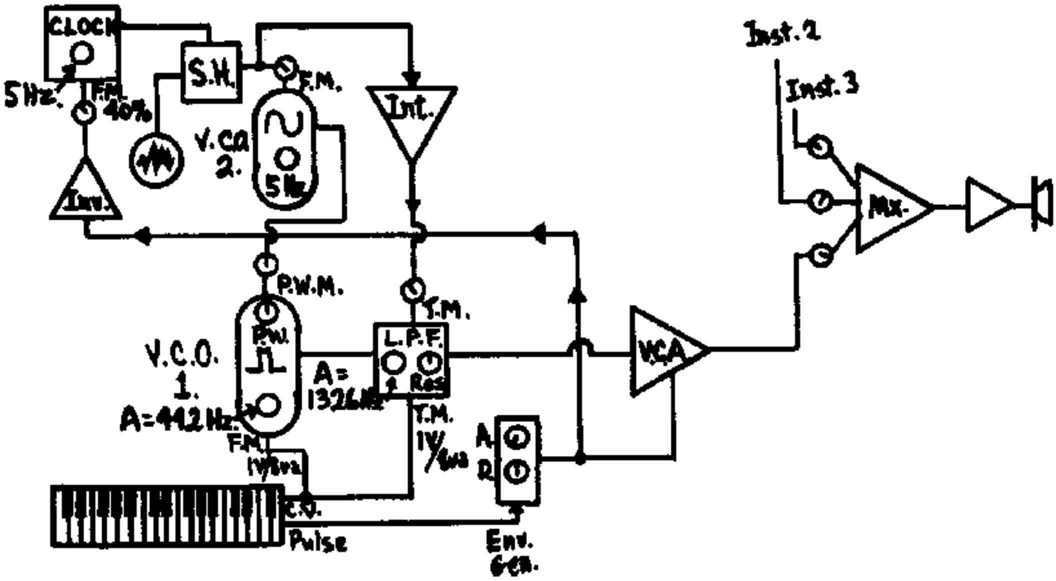
4. ELECTRONIC MUSIC: Symbols and Abbreviations

>	V	A
Larger than	Volts	Amps
<	+V	W
Smaller than	Positive Voltage	Watts
=	−V	∼
Equal to	Negative Voltage	Sine Wave

	Square Wave
	Pulse Wave
	Sawtooth Wave
	Triangle Wave
	Noise (in general)
wh.	White Noise
Pink	Pink Noise
F	Frequency
F^c	Center or Cutoff Frequency
Hz	Hertz (Cycles per second)
R	Right
L	Left
	Loudspeaker
	Microphone
Mx.	Mixer
S.H.	Sample-Hold
V.C.O.	Voltage Controlled Oscillator
V.C.A.	Voltage Controlled Amplifier
V.C.F.	Voltage Controlled Filter
V.C.	in general, Voltage Controlled
Int.	Integrator
Kbd.	Keyboard
Inv.	Inversion or Inverter
db	Decibels
L.P.	Low Pass (Filter)
H.P.	High Pass
B.P.	Band Pass
B.R.	Band Reject
Clock	Pulse-source for driving sequencers, etc.
P.W.	Pulse-Width
P.W.M.	Pulse-Width Modulation
A.M.	Amplitude Modulation
F.M.	Frequency Modulation
T.M.	Timbre Modulation
Env.	Envelope
E.G.	Envelope Generator
A.	Attack (Time)
D.	Decay (Time)
S.	Sustain (Level)
	Toggle Switch
Sig.	Signal
Pulse	Pulse Voltage
Trig.	Trigger
Res.	Resonance

Below is a sample patch of an "instrument" using this system.



EXPLANATION OF THE PATCH:

The keyboard supplies a control voltage to the signal source (VCO 1) which is producing a pulse wave which is filtered by the low pass filter with about 50% resonance. The keyboard voltage also controls the filter in such a way that its initial cutoff frequency will be two octaves above that of the frequency of VCO 1. The output of the filter is processed in amplitude by the Voltage Controlled Amplifier which, in turn, is mixed with two other "instruments" and sent to a power amplifier and loudspeaker. The attack/decay characteristics of the VCA are produced by an envelope generator which is fired by the pulse output of the keyboard: an envelope will be created each time a key is depressed. The output of the envelope generator is also sent to a clock through a voltage inverter. In this way, the clock will run faster as the VCA decays, and slower when it is in its "on" mode. The clock drives a Sample-Hold which is scanning noise and thus producing stepped random voltages at the speed of the clock frequency (a 40% deviation above and below 5Hz.). These stepped random voltages control the frequency of VCO 2 which is producing a sine wave used to pulse-width modulate VCO 1. The sample-hold output is also sent, through an integrator, to offset the cutoff frequency of the low-pass filter.

The sonic result of such a patch will be a keyboard-controlled melody rich in timbre variations. The pulse-width modulation will produce a randomly changing "timbre vibrato" which will tend to speed up as each tone decays. In addition, the filter will also produce slowing changes in cutoff frequency, again tending to speed up during decay.